



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,520	07/18/2003	Ying-Ling Liu	LIUY3011/EM	1159
23364	7590	11/24/2004	EXAMINER	
BACON & THOMAS, PLLC 625 SLATERS LANE FOURTH FLOOR ALEXANDRIA, VA 22314			PAVIGLIANITI, ANTHONY JOSEPH	
			ART UNIT	PAPER NUMBER
			1626	

DATE MAILED: 11/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.		Applicant(s)	
	10/621,520		LIU ET AL.	
	Examiner		Art Unit	
	Anthony J. Paviglianiti		1626	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 - 12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1 - 12 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. ____.  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____.   | 6) <input type="checkbox"/> Other: ____.                                    |

Art Unit: 1626

**DETAILED ACTION**

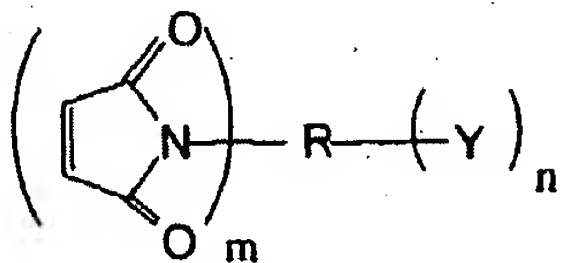
Claims 1 – 12 are pending in the instant application and are subject to the following restriction.

***Election/Restrictions***

The Markush group set forth in the claims includes both independent and distinct inventions, and patentable distinct compounds (or species) within each invention. However, this application discloses and claims a plurality of patentable distinct inventions far too numerous to list individually. Moreover, each of these inventions contains a plurality of patentable distinct compounds, also far too numerous to list individually. **For the reasons provided below, restriction to one of the following Groups is required under 35 U.S.C. 121:**

- I. Claims 1 - 8, drawn to compounds, classified in class 548, subclass 517 and various other subclasses.
- II. Claims 9 - 12, drawn to resins, classified in class 525, subclass 523 and various other classes and subclasses.

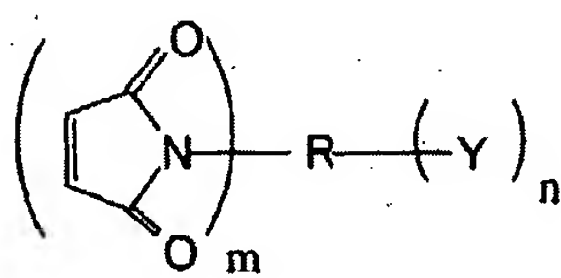
**In addition to an election of Group I or Group II, restriction is further required under 35 U.S.C. §121 to elect a single compound wherein a single definition for “R,” “Y,”**

“m,” and “n” on the base molecule, , is selected. In the instant application, the group labeled “R” on the base molecule in Claim 1 (and used in Claims 9 and 10) is defined only as “... a residue having at least one carbon and a valence equal to the sum of m and n.”

Art Unit: 1626

In accordance with the decisions in In re Harnisch, 631 F.2d 716, 206 USPQ 300 (CCPA 1980) and Ex parte Hozumi, 3 USPQ2d 1059 (Bd. Pat. App & Int. 1984), restriction of a Markush group is proper where the compounds within the group either (1) do not share a common utility, or (2) do not share a substantial structural feature disclosed as being essential to that utility. In addition, a Markush group may encompass a plurality of independent and distinct inventions where two or more members are so unrelated and diverse that a prior art reference anticipating the claim with respect to one of the members would not render the claim obvious under 35 U.S.C. §103 with respect to the other member(s). In the instant application, the Markush group in Claim 1 would encompass a wide array of compounds, because of the variability of "R" in the base molecule, such that a prior art reference as to one of the compounds falling within the Markush group would not render the claim obvious as to another compound within the same group.

Where an election of **Group I** or **Group II** is made, an election of a single compound is further required, including an exact definition of each substitution on the base molecule,



, wherein a single member (or, in the case of "m" and "n," a single numerical value) at each substituent group is selected. For example, if the base molecule has the substituent group "R," wherein "R" is recited to be "... a residue having at least one carbon and a valence equal to the sum of m and n," then applicant must select a single substituent for "R."

One suggestion would be that the group "R" be selected as "benzene" (as in Claim 3), and values for "m" and "n" defined as "1" and "1," respectively (as in Claim 4). However, if desired, applicant may select another compound supported by the claims or Specification.

In the instant case, upon election of a single compound, the Office will review the claims and disclosure to determine the scope of the independent invention encompassing the elected compound (and compounds which are so similar thereto as to be within the same inventive concept and reduction to practice). Examination will then proceed on the elected compound AND the entire scope of the invention encompassing the elected compound. A clear statement of the elected invention for search and examination will be set forth in the first action on the merits. Note that the restriction element will not be made final until such time as applicant is informed of the full scope of compounds. Should applicant traverse on the grounds that the compounds are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the compounds to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. §103(a) of the other invention.

All compounds falling outside the classes and subclasses of the selected compound and any other subclass encompassed by the election above will be directed to non-elected subject matter and will be withdrawn from consideration under 35 U.S.C. §121 and 37 C.F.R. 1.142(b), subject to reinstatement in the event that the requirement for restriction is withdrawn or overruled. Applicant may reserve the right to file divisional applications on the remaining subject matter. The provisions of 35 U.S.C. §121 apply with regard to double patenting covering divisional applications.

Applicant is reminded that upon cancellation of claims to a non-elected invention, the inventions must be amended in compliance with 37 C.F.R. §1.48(b) if one of the currently

Art Unit: 1626

named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 C.F.R. §1.48(b) and by the fee required under 37 C.F.R. §1.17(i).

If desired upon election of a single compound, applicants can review the claims and disclosure to determine the scope of the invention and can **set forth** a group of compounds which are so similar within the same inventive concept and reduction to practice. Markush claims must be provided with support in the disclosure for each member of the Markush group. See M.P.E.P. §608.01(p). Applicant should exercise caution in making a selection of a single member for each substituent group on the base molecule to be consistent with the written description.

**Rationale Establishing Patentable Distinctiveness Within Each Group**

The two Groups listed above, compounds (Group I) and resins (Group II), are recognized in the art as being distinct from one another because of their different physical and chemical properties. As noted in the Specification at p. 1, lines 11 – 14, epoxy resins have low curing shrinkage, good chemical and acid/alkali resistance, excellent electrical insulation properties, and high adhesive strength [as compared with organic compounds].

The two Groups have attained recognition in the art as separate subjects for inventive effort, and cured resins (Group II) are separately classified from organic chemical compounds (Group I), in classes 525 and 548, respectively.

The Specification discloses that the compounds and hardened resins claimed are also suitable for preparing a composite material, and in particular the fabrication of electronic devices as a binder of printed circuit boards and an encapsulation material of electronic devices. See Specification at p. 3, lines 2 – 5. Group I and Group II are thereby related also as

Art Unit: 1626

subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if shown to be separately usable. See MPEP § 806.05(d). In the instant case, hardened resins such as those claimed in Group II could have separate utility from those disclosed in the application, such as in fire-retardant materials or in manufacturing of adhesives.

Because of the plethora of subclasses in each of the two Groups, a serious burden is imposed on the examiner to perform a complete search of the defined areas in the absence of restriction. See M.P.E.P. § 808.02(A). Therefore, for the reasons given above, the restriction set forth is proper, and not to restrict would impose a serious burden in the examination of this application.

During a telephone conversation with Richard Fichter, Esq. on November 18, 2004, the restriction requirements were discussed, but applicant has made no provisional election of a Group or compound at this time.

Applicant is advised that the reply to this requirement must include an election of the Invention (Group) to be examined even though the requirement is traversed. 37 C.F.R. §1.143.

Applicant is further advised that a reply to this requirement must include an identification of the specific compound that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election.



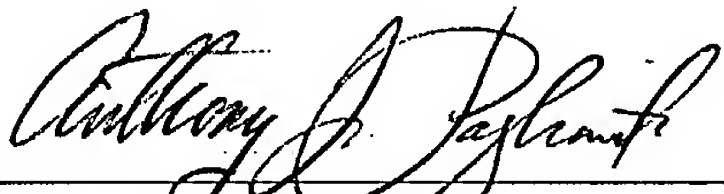
Art Unit: 1626

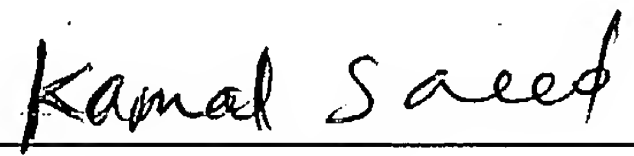
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Anthony J. Paviglianiti** whose telephone number is **(571) 272-3107**. The examiner can normally be reached on Monday-Friday, 8:30 a.m. - 5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph K. McKane can be reached at (571) 272-0699. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
\_\_\_\_\_  
Anthony J. Paviglianiti  
Patent Examiner  
Art Unit 1626 – Technical Center 1600

  
\_\_\_\_\_  
for Joseph K. McKane  
Supervisory Patent Examiner  
Art Unit 1626 – Technical Center 1600